

# **NORTH CAROLINIANS ONLINE**

**Tracking Home Computers and  
Internet Access in North Carolina**

**Citizens Surveys  
1999 to 2008**

**November 2008**

## **Table of Contents**

	<b><u>Page</u></b>
Executive Summary	3
Introduction	5
Changing Levels of Home Computer Ownership	6
Why Don't People Have a Home Computer?	8
Internet Access: Introduction	9
Home Internet Access: Proportion of All North Carolina Households	10
Why Don't You Subscribe to Home Internet Access?	12
Home Internet Access: Proportion of North Carolina Households with a Computer	13
What Kind of Internet Connection Do People Have?	15
Internet Access: Proportion of North Carolinians Who Use the Internet Anywhere	17
Attitudes, Beliefs and Opinions	19
Acknowledgements	21

# **Tracking Home Computers and Internet Access in North Carolina 1999 to 2008**

**Kenneth Wilson, Ph.D.  
East Carolina University  
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## **Executive Summary**

Digital technology creates new opportunities but it can also reinforce old social divisions. Unequal access to the Internet can hamper economic development and undermine the general quality of life in under-served areas. Four surveys conducted between 1999 and 2008 document the progress made by North Carolina. Interviews for the most recent survey were conducted Sept. 14 – Oct. 8, 2008.

In the past decade, North Carolina has experienced an amazing transformation. In 1999, only 53 percent of North Carolina households had home computers. In 2008 that figure has risen to 80 percent. In just nine years, the proportion of homes without a computer has dropped 57 percent. In 1999, the proportion of all homes with Internet access was 36 percent but this has risen to 70 percent in 2008. In just nine years, the proportion of homes without Internet access has dropped 53 percent. In 1999 the proportion of North Carolinians who used the Internet anywhere (at home, work, public access, etc.) was 62 percent. Today it has climbed to 82 percent. In less than a decade, North Carolina has been transformed from a place where a lot of people use the Internet, but only the elite have it in their homes, to a place where almost everyone uses the Internet and most people have it in their homes.

These facts suggest a fundamental change – in 1999, knowledge of the Internet was an advantage but today, lack of Internet knowledge is a handicap. While they are making some progress, poor families, minorities, older citizens and high school drop-outs lag behind the rest of North Carolina in these skills. African-American respondents present an interesting case – in the last four years the proportion of African-American households with home computers has remained constant while the proportion of home computers in African-American households connected to the Internet has grown dramatically (from 68 percent to 95 percent). In 1999, North Carolina was struggling with the idea of a digital society that has now become commonplace.

In 1999, only about half (57 percent) of the rural households with home computers had Internet access. By 2004, this figure had climbed to 91 percent (almost equal to telephone penetration) and in 2008 it was 90 percent. In rural North Carolina, one-third of those who do not have home Internet access use the Internet somewhere else. Between 2002 and 2004, the proportion of rural North Carolinians who reported using public access facilities increased from 3 percent to 10 percent. By 2008, 16 percent of rural North Carolina residents who did not have home Internet access had used a public access facility.

Rural access is only one challenge to universal digital literacy. Low-income families face special challenges. In the last four years, the poorest families seem to have made remarkable strides. Families with incomes under \$15,000 more than doubled their home computer ownership (31 percent to 65 percent) and almost doubled their home Internet access (25 percent to 49 percent).

Families making slightly more made almost no progress during these four years (43-to-45 percent and 32-to-33 percent). If there is some program to help the poorest families in North Carolina, this would be evidence of its success.

During the past four years, awareness of county government Web sites has increased dramatically from 39 percent in 2004 to 62 percent in 2008. Urban residents were more likely to be aware of county government Web sites (67 percent versus 57 percent) and more likely to express an interest in such a Web site if they were not aware of one (28 percent versus 8 percent). About one-third of those who knew that a Web site existed had visited it during the past month. The proportion using the county Web site was roughly the same in urban and rural areas of North Carolina.

The attitude questions show that the attitudes of North Carolinians have not changed very much during the past four years. Most recognize that the Internet is necessary to maintain a decent standing of living and that young children must master these skills. They support state subsidies for both home and businesses. However, they continue to be concerned about possible threats to privacy and the availability of obscene material.



## Introduction

Since 1999, four citizen surveys have documented the level of home computer ownership and Internet access in North Carolina.

**STUDY 1:** In 1999, the North Carolina Board of Science and Technology included a set of questions concerning computer and Internet usage in a more general study of public perceptions of the role and importance of science and technology in the North Carolina economy. A general population telephone survey employed random digit dialing. A total of 522 respondents completed the interview. The complete report is available on the e-NC Authority's Web site ([www.e-nc.org](http://www.e-nc.org)).

**STUDY 2:** After viewing the results of the 1999 survey, many local decision makers wanted to see the results for their counties. Unfortunately, the sample size (N=500) made it impossible to provide reliable information at the county level. In 2001, the Rural Internet Access Authority (the organization that preceded the e-NC Authority) planned to extend the work started by Vision 2030 as it related to computer and Internet access of North Carolina citizens, and to make it more relevant to local decision makers in every part of the state. In order to facilitate planning for improved Internet access in all 100 North Carolina counties, independent random samples were drawn from each county. A sample of 12,904 interviews of North Carolinians was completed in June 2002. So that the results could be generalized to the entire state, the data were weighted by the county's population and the respondent's education.

**STUDY 3:** The third study continued to track computer and Internet use in North Carolina. Interviewing began on Jan. 14, 2004 and was completed on Feb. 11, 2004. A total of 20 interviewers were chosen and trained for the project. The interviewer corps was predominantly female (four males). Interviewers ranged in age from 19-72. There were 1,197 completed interviews. Quotas were used to ensure that there was an adequate representation of rural counties. The sample of telephone numbers was purchased from Survey Sampling, Inc., a Connecticut firm with an excellent reputation that has provided samples for many years to East Carolina University and other universities with very satisfactory results. A significant number of interviews were conducted in Spanish using a bilingual interviewer. This is important to remember when the results for Hispanic respondents are compared to other studies that only interview English-speaking Hispanics. So that the results can be generalized to the entire state, the data were weighted by the county's population and the respondent's education.

**STUDY 4:** The fourth study tracking computer and Internet use in North Carolina was conducted this year. Interviewing began on Sept. 14, 2008 and was completed on Oct. 8, 2008. A total of 26 interviewers were chosen and trained for the project. The interviewer corps was predominantly female (four males). There were 1,244 completed interviews. Quotas were used to ensure that there was an adequate representation of rural counties. The sample of telephone numbers was purchased from Survey Sampling, Inc., a Connecticut firm with an excellent reputation that has provided samples for many years to East Carolina University and other universities with very satisfactory results. This year, households without landlines were contacted and 5 percent of the final sample consists of households with cell phones but no landlines.



## Changing Levels of Home Computer Ownership

Over the past five years, the level of home computer ownership has been steadily increasing. Table 1 presents the results of the four surveys in a format that supports easy comparison. These results show that home computer ownership in North Carolina has increased from 53 percent in 1999 to 80 percent in 2008. During this period of nine years, the rate of home computer ownership in North Carolina has increased 51 percent.

<b>Table 1: Computer Penetration Demographics</b>				
<b>Percentage of North Carolina Households that Have a Home Computer</b>				
	<b>1999</b>	<b>2002</b>	<b>2004</b>	<b>2008</b>
Overall	53%	60%	67%	80%
<b>Gender</b>				
Men	59%	65%	68%	88%
Women	53%	57%	63%	78%
<b>Generations</b>				
Ages 18-27	55%	68%	76%	96%
Ages 28-39	60%	71%	79%	95%
Ages 40-49	60%	72%	70%	90%
Ages 50-58	66%	58%	73%	86%
Ages 59-68	44%	43%	50%	81%
Age 69+	24%	28%	35%	47%
<b>Race and ethnicity</b>				
White	61%	65%	68%	84%
African-American	31%	44%	63%	63%
Native American		50%	39%	55%
Hispanic		37%	31%	67%
Other		65%	74%	77%
<b>County Type</b>				
Urban	58%	64%	71%	83%
Rural	46%	55%	59%	76%
<b>Household Income</b>				
Less than \$15,000	35%	34%	31%	65%
\$15,000 to \$24,999	25%	43%	43%	45%
\$25,000 to \$29,999	37%	60%	64%	82%
\$30,000 to \$49,999	43%	71%	78%	84%
\$50,000 to \$74,999	49%	79%	88%	97%
\$75,000 to \$99,999	50%	86%	92%	100%
\$100,000 and above	66%	91%	97%	96%
<b>Educational Attainment</b>				
Less than High School	20%	33%	36%	55%
High School Graduates	47%	60%	65%	81%
Community College Degree	65%	75%	78%	90%
College Degree	76%	84%	87%	96%
Graduate Degree	78%	87%	93%	87%
<b>Children Living at Home</b>				
Yes	64%	69%	81%	93%
No	49%	54%	55%	75%

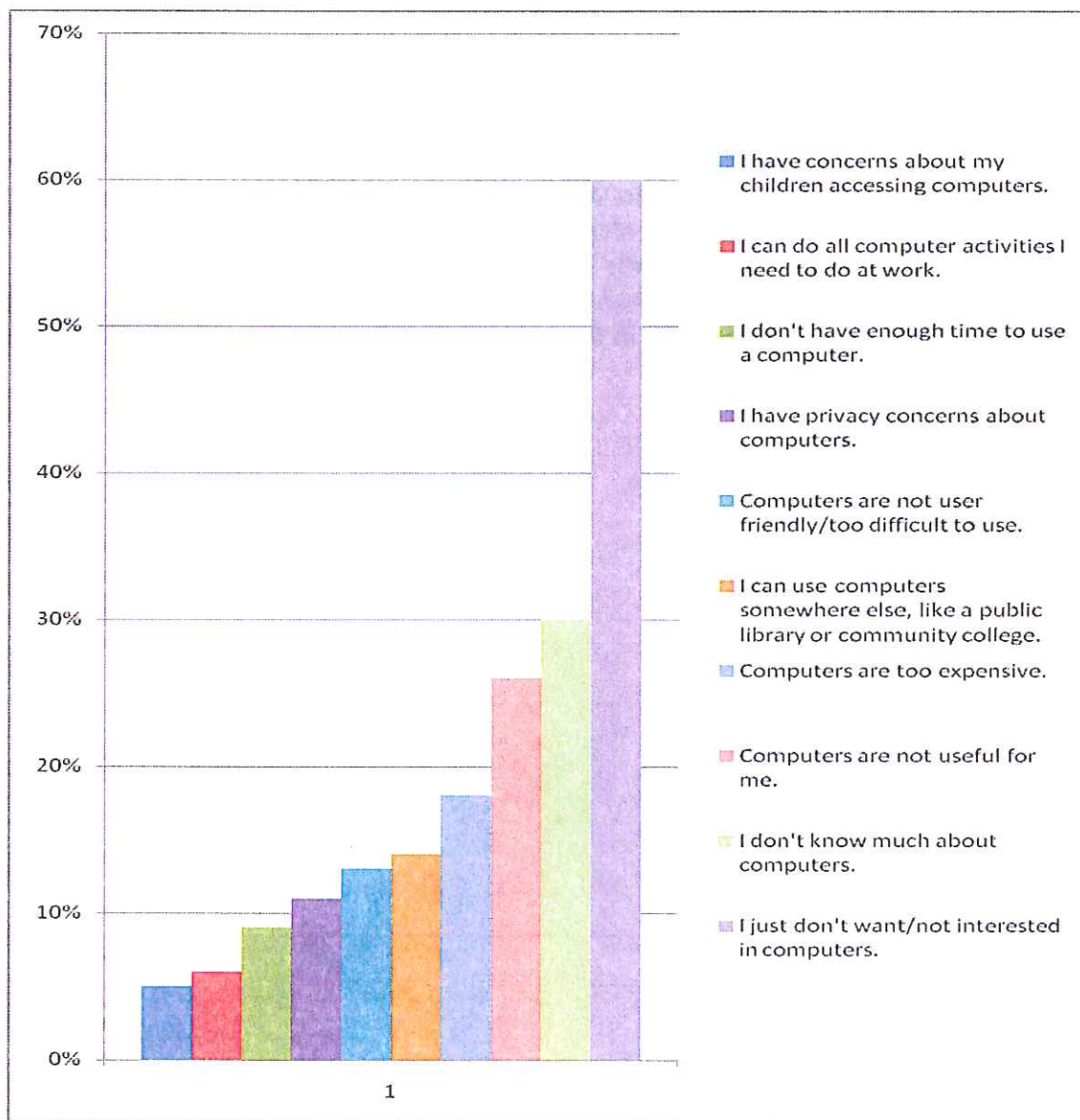
When examining Table 1, be sure to notice:

- Home computer ownership has continued to rise.
- In 1999, middle aged respondents were most likely to own computers but that has changed. Younger households are now most likely to own computers. The elderly remain the least likely to own a home computer.
- White households have continued to increase their home computer ownership. In African-American households, home computer ownership has not increased during the past four years. In the past four years, Hispanic and Native American households have caught up with African-American households.
- During the past four years, home computer ownership has increased faster in rural counties than in urban counties. This has decreased the gap between these regions of the state.
- Almost every household with an income of over \$50,000 per year now has a home computer but many low income households do not have a home computer.
- During the past four years, the rate of home computer ownership has increased sharply (31 percent to 65 percent) among North Carolina families making less than \$15,000 a year – but not among families making between \$15,000 and \$24,999 (43 percent to 45 percent). If a program to increase computer and Internet access for North Carolina's poorest families exists, then this is clear evidence of success.
- High school drop-outs are least likely to own a home computer.
- Almost all households with children have home computers but during the past four years there has been a dramatic increase in the proportion of households without children that own home computers.

## Why Don't People Have a Home Computer?

People who reported that their household did not have a home computer were asked if they were planning to buy a home computer within the next year. Only 9 percent of the respondents who did not have a home computer were planning to buy one within the next year. Over half (60 percent) of the respondents reported that they did not have a home computer because they did not want one. Eighteen percent reported that computers were too expensive and another 15 percent reported that they used a computer at a public access point like a library or community college.

Most of the respondents who earned between \$15,000 and \$49,999 (54 percent) reported that computers were too expensive compared to 7 percent who earned less, and none of the respondents who earned more than \$50,000.





## Internet Access: Introduction

There are three ways of looking at Internet access. The first two stress home Internet access. Both approaches are important but they produce very different numbers so you need to be careful when you read the following tables. The third approach stresses more general access to resources and assesses the use of the Internet anywhere – at home, work or school.

**Proportion of All North Carolina Households:** Many people are interested in the proportion of households that subscribe to home Internet access. In these households, people can do private research and children can do their homework with help from their parents. Today, about 70 percent of all North Carolina households subscribe to home Internet access.

**Proportion of North Carolina Households with a Computer:** At the beginning of this century, many North Carolina households could not get home Internet access. That barrier has been eliminated and today almost every North Carolina household can get home Internet access with a local telephone call. The biggest remaining barrier to home Internet access is that it requires a home computer. This proportion indicates the extent of the barriers remaining after a home computer has been purchased. Today, about 91 percent of the homes with computers subscribe to home Internet access.

**Proportion of North Carolinians Who Use the Internet Anywhere:** Some people don't subscribe to home Internet access because they can use the Internet at work or somewhere else. This proportion indicates the full extent to which North Carolinians are involved with the Internet. About 82 percent of North Carolinians use the Internet somewhere.

## Home Internet Access: Proportion of All North Carolina Households

In the 9 years between these studies, the proportion of all North Carolina homes subscribing to Internet access has increased from 36 percent to 70 percent. While it is still far from universal, in less than a decade, the proportion of homes with Internet has almost doubled as the Internet has become a common part of our everyday lives.

Table 2: Internet Penetration Demographic Percentage of <b>ALL</b> North Carolina Households That Have Home Internet Access				
	1999	2002	2004	2008
Overall	36%	52%	59%	70%
<b>Gender</b>				
Men	41%	58%	61%	77%
Women	35%	49%	55%	69%
<b>Generations</b>				
Ages 18-27	40%	59%	65%	81%
Ages 28-39	40%	63%	72%	85%
Ages 40-49	42%	64%	67%	90%
Ages 50-58	49%	50%	65%	80%
Ages 59-68	23%	34%	43%	73%
Age 69+	12%	24%	29%	37%
<b>Race and ethnicity</b>				
White	43%	57%	62%	74%
African-American	19%	34%	49%	60%
Native American		37%	38%	43%
Hispanic		35%	22%	52%
Other		57%	67%	61%
<b>County Type</b>				
Urban	43%	57%	62%	74%
Rural	26%	46%	51%	66%
<b>Household Income</b>				
Less than \$15,000	9%	25%	25%	49%
\$15,000 to \$24,999	4%	33%	32%	33%
\$25,000 to \$29,999	27%	52%	55%	72%
\$30,000 to \$49,999	23%	62%	68%	79%
\$50,000 to \$74,999	34%	73%	83%	92%
\$75,000 to \$99,999	31%	81%	87%	97%
\$100,000 and above	43%	85%	94%	91%
<b>Educational Attainment</b>				
Less than High School	2%	26%	28%	48%
High School Graduates	30%	51%	57%	72%
Community College Degree	45%	65%	69%	83%
College Degree	58%	78%	83%	91%
Graduate Degree	64%	83%	88%	84%
<b>Children Living at Home</b>				
Yes	43%	61%	74%	88%
No	34%	46%	48%	65%

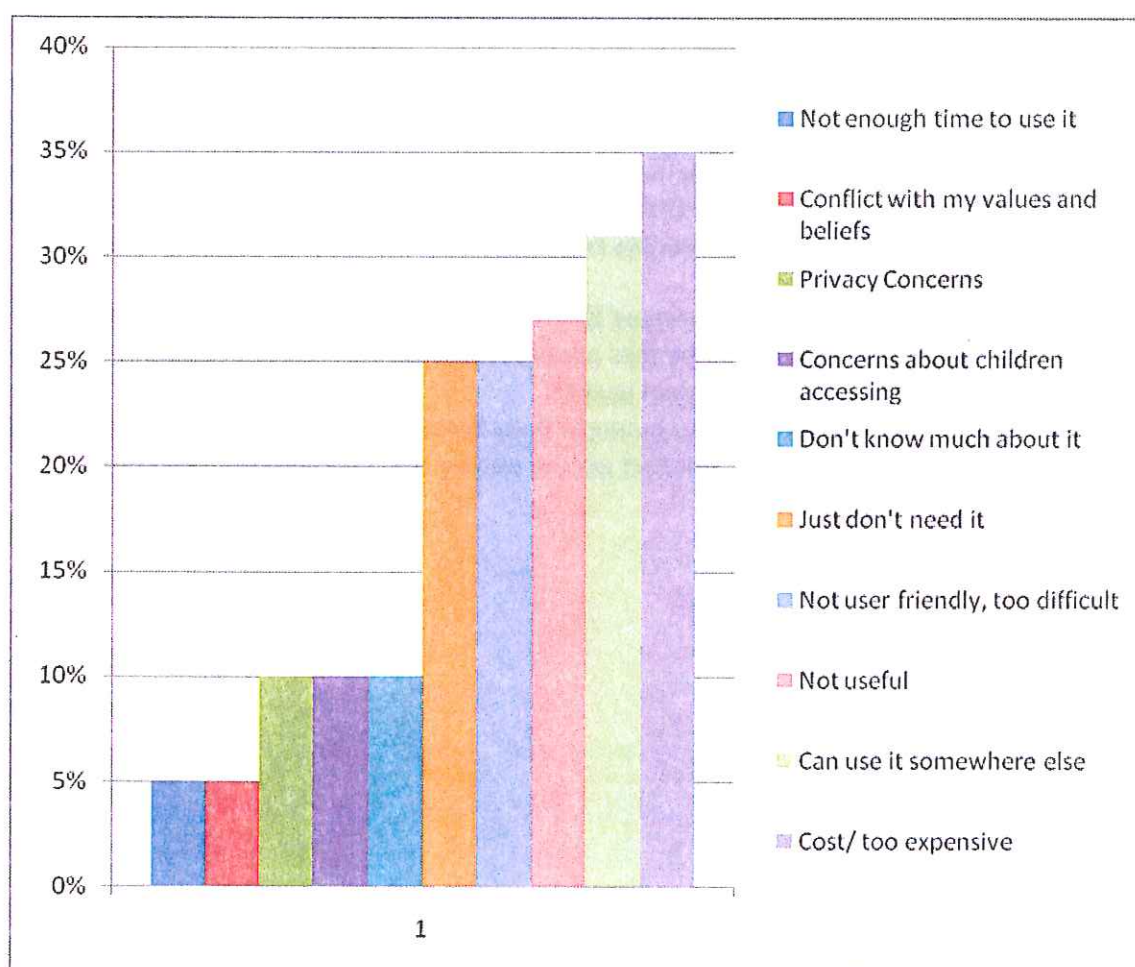
When examining Table 2, be sure to notice:

- The proportion of homes subscribing to Internet access has increased almost 20 percent in the last 4 years and almost doubled since 1999 (36 percent to 70 percent).
- In 1999, most urban residents did not subscribe to home Internet access and residents of rural counties were much less likely to subscribe to home Internet access (26 percent versus 43 percent). By 2008, that gap had decreased significantly (66 percent versus 74 percent) and most people in both regions of the state subscribed to home Internet.
- While home Internet access was most common among middle aged respondents, it has become common in all age groups except those 69 or older.
- Internet access continues to increase among all races and ethnic groups.
- The proportion of Hispanics probably decreased in the 2004 survey because it included families that did not speak English. In the earlier surveys, only English speaking Hispanics were included. In the 2008 survey, only English speaking Hispanics were interviewed.
- Economically-disadvantaged families continue to increase their home Internet access. Almost all households reporting income of \$50,000 or more subscribe to home Internet access. Progress was made by families earning between \$25,000 and \$49,999. Progress for families earning between \$15,000 and \$24,999 has stopped. However, there is a sharp jump in the proportion of poor families (earning less than \$15,000) that have home Internet access.
- While more educated families are most likely to have home Internet access, there is significant progress being made by less educated households. Almost half of high school drop-outs subscribe to home Internet access.
- Families with children continue to increase their home Internet access, but there has also been a sharp increase in home Internet access among families without children.



## Why Don't You Subscribe to Home Internet Access?

Respondents who did not subscribe to home Internet access were asked a series of questions to access why this was the case. The following chart shows that their most common answer was that that subscribing to home Internet was too expensive (35 percent). This is consistent with the fact that almost all households earning more than \$50,000 per year subscribe while lower income households are less willing to pay the monthly subscription fee (e.g., 73 percent of households earning less than \$15,000 indicated that the cost was a reason they did not have a home Internet subscription). The second most common reason was that they could use the Internet somewhere else (31 percent). Public access provides an alternative for families on a tight budget (e.g., over half [53 percent] of families earning less than \$15,000 give this as a reason for not having a home Internet subscription).





## Home Internet Access: Proportion of North Carolina Households with a Computer

In the 9 years spanned by these studies, the proportion of homes with computers that also subscribe to home Internet access has increased 68 percent to 91 percent. While it has not quite caught up with landline telephone access (about 95 percent in North Carolina), Internet access among homes with a computer is almost as common.

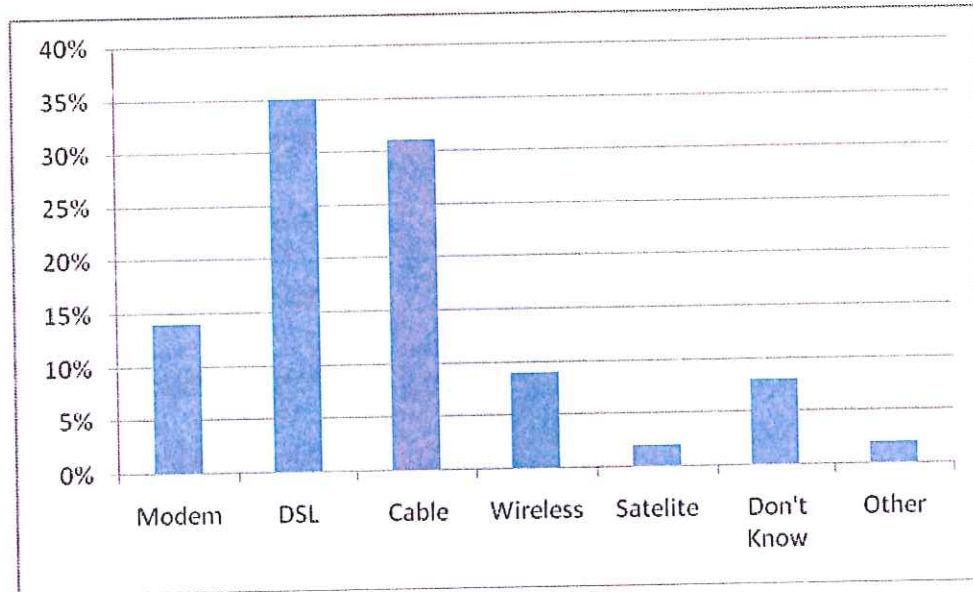
<b>Table 3: Internet Penetration Demographic Percentage of North Carolina Households With Home Computers That Have Home Internet Access</b>				
	1999	2002	2004	2008
Overall	68%	87%	89%	91%
<b>Gender</b>				
Men	68%	88%	90%	92%
Women	67%	86%	89%	90%
<b>Generations</b>				
Ages 18-27	72%	87%	85%	85%
Ages 28-39	69%	89%	91%	90%
Ages 40-49	70%	88%	96%	100%
Ages 50-58	74%	87%	89%	93%
Ages 59-68	52%	80%	84%	90%
Age 69+	50%	85%	81%	77%
<b>Race and ethnicity</b>				
White	69%	88%	91%	91%
African-American	61%	70%	78%	95%
Native American		75%	100%	81%
Hispanic		95%	74%	78%
Other		89%	90%	82%
<b>County Type</b>				
Urban	73%	84%	89%	92%
Rural	57%	88%	91%	90%
<b>Household Income</b>				
Less than \$15,000	29%	72%	82%	76%
\$15,000 to \$24,999	17%	78%	76%	88%
\$25,000 to \$29,999	73%	87%	87%	95%
\$30,000 to \$49,999	53%	88%	87%	99%
\$50,000 to \$74,999	70%	93%	94%	95%
\$75,000 to \$99,999	62%	94%	95%	99%
\$100,000 and above	64%	94%	98%	95%
<b>Educational Attainment</b>				
Less than High School	8%	79%	78%	87%
High School Graduates	64%	85%	88%	89%
Community College Degree	67%	86%	89%	93%
College Degree	76%	92%	96%	96%
Graduate Degree	82%	95%	95%	97%
<b>Children Living at Home</b>				
Yes	70%	88%	92%	95%
No	66%	85%	87%	88%

This is a particularly impressive achievement because it includes an increase from 57 percent to 90 percent in rural counties. The e-NC Authority, supported by the state of North Carolina and the work of citizens at the local level, should be proud that this work promoting computer and Internet literacy has paid off in this unusually strong growth in rural counties. The public-private partnerships led by the e-NC Authority have created a foundation for the transformation that is bringing rural North Carolinians into the digital age.

When examining Table 3, be sure to notice that these results clearly seem to indicate that the major factor creating gaps in home Internet access is the lack of a home computer. This may be because the cost of buying a computer and adding Internet service is too great for certain households. On the other hand, it may be that one of the biggest values derived from home computers is the ability to access the Internet.

## What Kind of Internet Connection Do People Have?

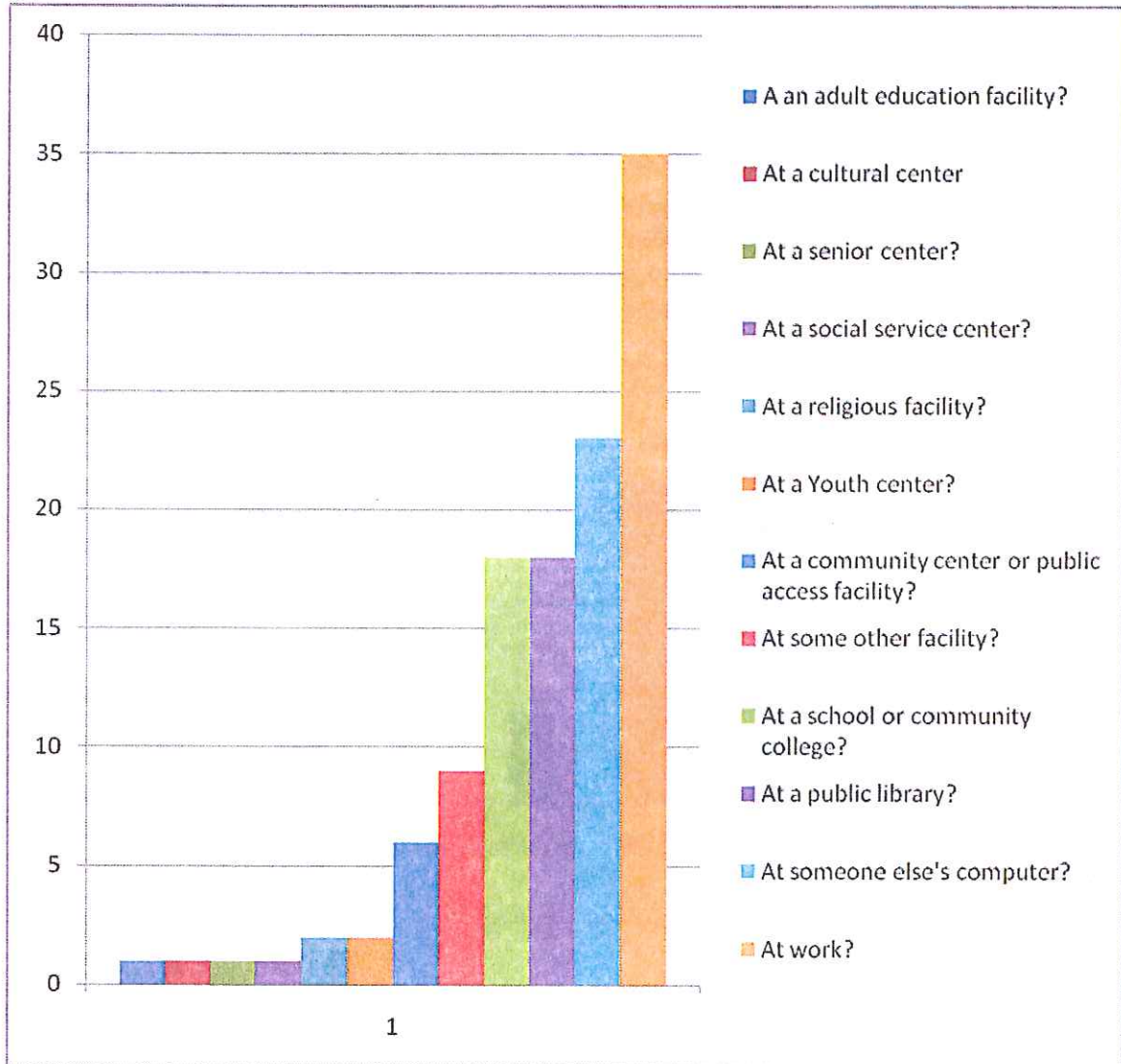
Telephone modems are no longer the most popular way to connect to the Internet in North Carolina. Their dominance has dropped from 56 percent to 14 percent over the last 4 years. DSL and cable have both increased their share of the home Internet market. Over half of the respondents with home Internet access report that they subscribe to a high-speed connection (54 percent) while another 25 percent report that they subscribe to a broadband connection. Two-thirds of the respondents are not willing to pay more for a faster connection. Interestingly, 1.5 percent reported that they still make a long-distance phone call to connect to the Internet.



The respondents were also asked about their use of devices other than a computer to access the Internet. Seventeen percent reported using a cell phone to access the Internet and 6 percent reported using some type of pocket organizer (Palm Pilot, Blackberry, etc.). Two percent reported using some other type of device to access the Internet. Over one-fourth (28 percent) of our respondents access the Internet using some device other than a computer. All of these respondents also had a home computer and home Internet access.

Respondents were also asked if they used the Internet anywhere outside their home. Over one-third (35 percent) reported that they used the Internet at work and 23 percent reported using the Internet on someone else's computer. Eighteen percent reported using the Internet at public access facilities at school, community colleges or libraries. Public libraries were used by almost half (43 percent) of our poorest (incomes less than \$15,000) respondents.







**Internet Access:**  
**Proportion of North Carolinians Who Use the Internet Anywhere**

Table 4: Internet Penetration Demographic: Percentage of <b>ALL</b> Respondents Who Use the Internet <b>Anywhere</b>			
	2002	2004	2008
Overall	65%	71%	82%
<b>Gender</b>			
Men	71%	75%	90%
Women	62%	68%	79%
<b>Generations</b>			
Ages 18-27	86%	89%	96%
Ages 28-39	79%	87%	100%
Ages 40-49	73%	84%	98%
Ages 50-58	59%	75%	89%
Ages 59-68	39%	53%	84%
Ages 69+	26%	31%	38%
<b>Race and ethnicity</b>			
White	69%	75%	84%
African-American	55%	62%	79%
Native American	53%	42%	48%
Hispanic	57%	46%	58%
Other	66%	82%	61%
<b>County Type</b>			
Urban	69%	73%	84%
Rural	60%	67%	79%
<b>Household Income</b>			
Less than \$15,000	44%	34%	60%
\$15,000 to \$24,999	53%	61%	46%
\$25,000 to \$29,999	66%	77%	91%
\$30,000 to \$49,999	75%	81%	85%
\$50,000 to \$74,999	84%	90%	96%
\$75,000 to \$99,999	92%	95%	100%
\$100,000 and above	88%	99%	96%
<b>Educational Attainment</b>			
Less than High School	36%	43%	58%
High School Graduates	66%	72%	83%
Community College Degree	82%	79%	92%
College Degree	89%	91%	96%
Graduate Degree	92%	96%	82%

When examining Table 4, be sure to notice:

- Most (82 percent) people in North Carolina use the Internet somewhere. This indicates that the Internet has become part of the everyday culture of North Carolina.
- There is an important gap between older respondents, Native American and Hispanic respondents, poorer respondents and high school drop-outs and the prevailing Internet culture of North Carolina.

### **County Government Web site:**

- All respondents were asked if their county had a Web site and 62 percent reported that they knew that their county government had a Web site. This is a sharp increase from 39 percent in 2004. Urban respondents are more aware of county Web sites than rural respondents (67 percent versus 57 percent).
- Only 17 percent of the remaining respondents (answering “No” or “Don’t Know” if county has a Web site) reported that they would be interested in a county government Web site. Urban respondents were much more likely than rural respondents to express an interest (28 percent versus 8 percent).
- Of those who knew that a county Web site existed (62 percent), roughly one-third had visited the county government Web site during the past month. Urban and rural respondents are equally likely to visit their county’s Web site.

### **City Government Web sites**

- Respondents were asked if they lived in a town or city. Of those who live in towns or cities, 65 percent knew that their local government had a Web site. This is an increase from 43 percent in 2004.
- One third (35 percent) of the remaining respondents (responding “No” or “Don’t Know” if the town has a Web site) expressed an interest in a city government Web site.
- Of those respondents who were aware of the government Web site (65 percent), less than one-third (29 percent) had visited their local government’s Web site during the past month. This is roughly the same as in 2004.

## Attitudes, Beliefs and Opinions

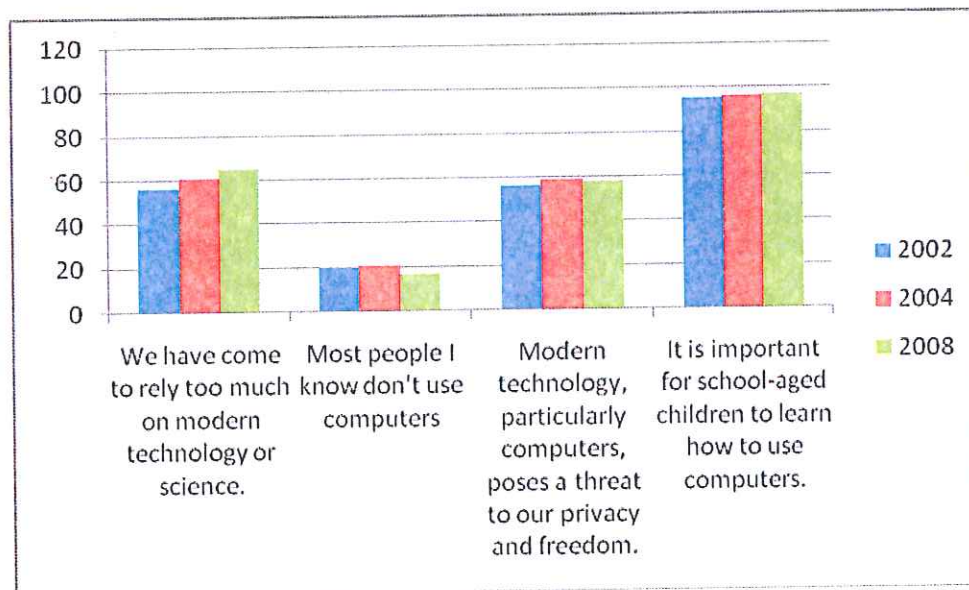
### Obscene Material

- Do you support the use of constitutionally-valid protective actions to limit the distribution of obscene material to children via the Internet?
  - 90 percent say of all respondents say “Yes.” (unchanged from 2004)
  - 86 percent of those respondents with children living at home say “Yes.” This is a small decrease compared with 92 percent in 2004.
- Have you ever had a problem with your children accessing obscene material on the Internet?
  - 14 percent of all respondents say “Yes.” (unchanged from 2004)
  - 23 percent of those respondents with children living at home say “Yes.” (compared with 24 percent in 2004)

### Attitudes about the Importance of Technology

The attitude questions show that:

- People are concerned about obscene material on the Internet that children can access.
- Almost everyone recognizes that it is important for school-aged children to learn to use the computer and that Internet access is essential for a decent standard of living.
- Over half of North Carolinians worry that the new technology invades our privacy and that we rely on it too much.
- Few people live in groups or communities where most people don't use a computer.



- Most North Carolinians continue to believe that Internet access is essential for a decent standard of living. They believe also that the state should support programs to bring Internet access to everyone's home who wants it and to bring high-speed access to all North Carolina businesses that need it.

